

1    ABSTRACT

2            A slow wave structure for coupling RF energy with an  
3    electron beam comprises a co-propagating RF section  
4    including a plurality of pins having a uniform separation  
5    from the plane of an electron beam axis. An output aperture  
6    is positioned a half wavelength from a reflection section  
7    comprising a change in depth of the pintles, such that RF  
8    energy reflected by the change in pintle depth is added to  
9    the RF energy traveling with the electron beam. One or more  
10   rows of pintles are removed in the region of the output  
11   aperture to enhance coupling to the output aperture. The  
12   device may include a beam shaper for shaping the electron  
13   beam to surround the pintles, and the beam shaper and  
14   pintles may share common channels which are longitudinal to  
15   the electron beam axis. The slow wave structure may operate  
16   in forward and backward wave modes, and may be used in  
17   conjunction with other structures to form amplifiers and  
18   oscillators.